

Combination Practices of Counter Pressure and Birth Ball Exercise Towards the Labor Pain Intensity

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Abstract: *Background:* Labor pain can affect the functional mechanisms that cause physiological stress responses, resulting in a decrease in uterine contractions. One of the non-pharmacological methods is very effective in overcoming labor pain is the method of massage. The combination of counterpressure and birth ball exercise is one of the options for labor pain management that can improve the progress of labor. *Objective:* To analyze the effect of a combination of Counter pressure and birth ball exercise in reducing the intensity of labor pain and increasing levels of β -Endorphin. *Methods:* Quasy experiment with random cluster design pretest and posttest control group design. There were 40 samples divided into 2 groups with Consecutive sampling technique. Each group consists of 20 respondents. Group 1 was given a combination of Counter pressure and birth ball exercise interventions, while the second group was a control group. Analysis was used to assess differences in pain reduction between the 2 groups using the Mann-Whitney test, while differences in the increase in beta-endorphine levels used Independent Sample T-Test. *Results:* The mean labor pain after treatment was 70% (moderate pain), while the control group was 85% (severe pain). Different test results of labor pain using Mann-Whitney test obtained p value = 0.003. The mean level of β -endorphine after being given treatment was 121.02 ng / ml, while the control group was 63.46 ng / ml. The results of different test β -endorphine levels using Independent T-Test test obtained p value 0,000. *Conclusion:* Combination of Counter pressure and birth ball exercise was effective to reduce labor pain and increase β -endorphine levels in labor.

Keywords: Counter pressure, Birth Ball Exercise, Intensitas Nyeri Persalinan, Kadar Hormon β -Endorphin, Primigravida

1. Introduction

The pain must be reduced or lowered effectively, because if there is pain accompanied by anxiety it is not immediately addressed properly it can cause problems in the mother, namely increased production of adrenal hormones and constriction of blood vessels (vasoconstriction) which causes maternal blood flow to the fetus to decrease.[14] The fetus will experience oxygen deprivation in the tissues (hypoxia), whereas in the mother it can lead to an extension of the first stage of labor and there is no slow progress in labor or labor so that it can increase blood pressure which can cause complications in labor that are worrying, complicated and not unexpected.[3] The effective method in overcoming pain which is one of the non-pharmacological methods performed to reduce labor pain is massage.[6] In the study, it was stated that the mothers who had back massage had the effect of reducing pain intensity.[13] There are many techniques for performing massage, including counter pressure techniques. There are differences in the way or place of massage so that it has different effects and sensations.[15] One of the relaxation techniques and other non-pharmacological actions in handling pain during childbirth is by using birth ball exercises which are also commonly known in Pilates exercises as fitball, Swiss ball and petzi ball.[18] To prove the influence of both technique of counter pressure massage and birth ball exercise methods on labor pain, it is necessary to combine the two methods in order to obtain a stronger effect in stimulating the β -endorphin hormone and the relaxation effect will be more maximal so that the increase in intensity decreases labor pain will be optimal.

2. Literature Survey

Labor is the process of opening and thinning the cervix, and the fetus descends into the birth canal. Normal labor and delivery is a process of spending the fetus that occurs at term months of pregnancy (37-42 weeks), born spontaneously with the back of the head presentation lasting 18 hours, without complications both mother and fetus.[11]

In women who have never been pregnant and give birth (primigravida), pregnancy and childbirth are odd to them, especially if they have heard trauma or failure to deal with physiological changes in pregnancy and childbirth can also cause anxiety.[10]

Pain is a condition in the form of unpleasant feelings, very subjective. The feeling of pain in each person is different in terms of scale or level, and only that person can explain or evaluate the pain he experienced.[12] Measurement of pain intensity is very subjective and individual, and the possibility of pain in the same intensity is very different by two different people. Pain measurement with an objective approach that is most likely is to use the body's physiological response to the pain itself.[1] There are two pain measurement scales used in this study, numeric rating scale (NRS) and visual analog scale (VAS). The source of pain at the end of stage I and stage II comes from the lower genital tract, including the perineum, anus, vulva and clitoris. Pain impulses are transmitted through the pudental nerve to S4, S3 and S2. Pain that is felt especially in the vulva and surrounding areas and the lumbar region.[8] The massase counter pressure

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technique is a massage technique for low back pain in labor with a non-pharmacological (traditional) method, which is by suppressing nerves in the area of low back pain in the mother, using a fist to the mother's waist for 20 minutes in a sitting position. Emphasis is made when the respondent experiences uterine contractions (which cause low back pain) at the first active phase. [19]

Birth ball in pregnancy can help reduce back pain that is experienced and make it easier for pregnant women to mobilize. This can also help reduce labor pain, reduce pain from contractions (especially if used for several months before giving birth), reduce anxiety and shorten the first stage of labor. [16] Birth ball exercise has benefits that are very important for the comfort and psychological of the mother during childbirth where the birth ball is able to reduce labor pain so that the birth process can run well. [58] Birth ball is physically useful so it can be used during pregnancy and childbirth. [7] The use of birth ball during labor prevents the mother in a supine position continuously. The use of birth ball during labor is able to reduce the level of pain because it stimulates postural reflexes and maintains the muscles and maintains reduce anxiety, minimal use of pethidine, facilitates the reduction of the fetal head, reduces the length of time in labor and increases maternal satisfaction and well-being. [5]

3. Methods/Approach

This type of research uses quasi experimental with random cluster design pretest and posttest control group design. There were 40 samples divided into 2 groups with purposive sampling technique. Each group consists of 20 respondents. Group 1 The treatment was given a combination of counterpressure and birth ball exercise interventions with measurements of labor pain with numeric rating scale and visual analog scale and group 2 performed back massage in accordance with operational standards and measured pain intensity with numeric rating scale and visual analog scale. Analysis was used to assess differences in pain reduction between the 2 groups using the Mann-Whitney test, while differences in the increase in beta-endorphine levels used Independent Sample T-Test. Research ethics is informed consent, anonymity, confidentiality and truth. [20] Ethical approval was obtained from the Health Polytechnic Semarang Health Research Ethics Committee.

4. Results & Discussion

4.1 The effectiveness of the application of a combination of counter pressure and birth ball exercise on the decrease in first stage labor pain in the treatment group compared to the control group

Labor pain with a NRS (numeric rating scale) measurement scale in the treatment group was more effective than the control group seen from p value = 0.000 with the difference in the average labor pain of -3.950 ± 0.51 while the control group had an average difference of -1.70 ± 0.57 and there are significant differences between before and after being given intervention in the application of a combination of

counter pressure and birth ball exercise in the treatment group and the control group applying back massage with p value <0.05 .

The mean difference in the NRS (numeric rating scale) measurement scale in the treatment group was -3.950 ± 0.51 while the control group was 1.70 ± 0.57 . It can be said that the application of a combination of counterpressure and birthball exercise was more effective in increasing beta-endorphine levels compared to the application of back massage. seen from p-value = 0.000 ($p < 0.05$) which means there is a difference in the difference in levels of β -endorphin hormone in the treatment and control groups.

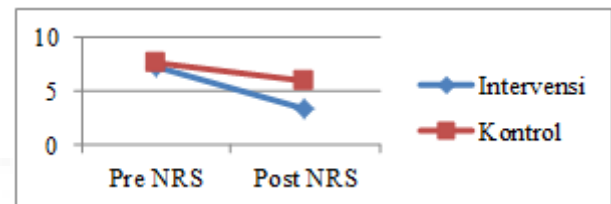


Figure 1 : NRS measurement scale - (numeric rating scale)

Labor pain with a VAS measurement scale (visual analog scale) in the treatment group was more effective than the control group seen from p value = 0.000 with a difference in the average labor pain of -41.00 ± 7.88 while the control group had an average difference amounting to -10.50 ± 9.45 and there were significant differences between before and after being given the intervention in the application of a combination of counter pressure and birth ball exercise in the treatment group and the control group applying back massage with p value <0.05 .

The mean difference in the VAS (visual analog scale) measurement scale in the treatment group -41.00 ± 7.88 while the control group -10.50 ± 9.45 can be said that the application of counterpressure and birthball exercise combination is more effective in increasing beta-endorphine levels compared to the application Back massage is seen from p-value = 0.000 ($p < 0.05$) which means that there is a difference in the difference between the levels of β -endorphin hormone in the treatment and control groups.

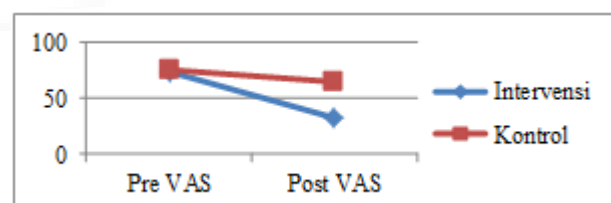


Figure 2 : VAS measurement scale - (visual analog scale)

On both the NRS (numeric rating scale) and VAS (visual analog scale) measuring scales there are both differences between before and after an intervention is given, this indicates that the two measurement scales above are effectively used to perform pain measurement scales. However, when viewed from the difference in mean difference between the two measurement scales above VAS scale, the treatment and control difference scores were more prominent where the mean labor pain at the VAS scale in the

treatment group was -41.00 ± 7.88 and the VAS scale in the control group. amounting to -10.50 ± 9.45 .

Pain felt by the mother occurs due to the transmission of pain impulses through certain nerves. In the first stage of labor, pain nerve impulses originate from the cervix and uterine corpus.[4] Pain impulses originating from the cervix and corpus uteri are transmitted by afferent nerve fibers through the uterine plexus, pelvic plexus, inferior, middle, posterior plexus and into the lumbar then enter the spinal through L1, T12, T11, T10.10 Pain that is felt in the lower abdomen and waist that occurs at the first stage of labor. The source of pain at the end of stage I and stage II comes from the lower genital tract, including the perineum, anus, vulva and clitoris. Pain impulses are transmitted through the pudental nerve to S4, S3 and S2. Pain is felt mainly in the vulva and surrounding areas and the waist area.[2] Pain felt by the mother is getting stronger along with the increase in cervical dilation and the peak of pain occurs in the active phase until cervical dilatation reaches 10 cm. Childbirth pain and pain are considered to be the most unpleasant and frightening for mothers. Great pain in childbirth must be dealt with effectively, if not resolved it can affect the condition of the mother and fetus. There is non-pharmacological pain management that can be done to reduce labor pain. The application of a combination of counter pressure and birth ball exercise is one of the options for labor pain management that can improve the progress of labor.[17] Feelings of anxiety and fear during labor can trigger the sympathetic and parasympathetic nervous systems, which can further increase the intensity of pain that is felt. The physical condition of the mother is also very influential on the intensity of pain during childbirth, the labor process requires considerable strength or energy, because if the mother experiences fatigue in labor will not be tolerant enough to deal with the pain that arises so that the perceived intensity of pain is higher. [9]

After being given the intervention the application of a combination of counter pressure and birth ball exercise of primigravida mothers when I had more self-control and self-control ability and could take action to deal with the labor process so that there could be a decrease in pain intensity in the treatment group after intervention.

5. Conclusion

The combination of counter pressure and birth ball exercise is effective against decreasing pain during labor during the active phase compared to the control group.

Maternal psychological preparation greatly determines the success of the birth process, the psychological state of the mother who is depressed, sad, and tense will determine the intensity of pain during labor.

6. Future Scope

This study focuses on the practices of a counter pressure massage and birth ball exercise combination on reducing the intensity of labor pain and increasing levels of β -Endorphine in normal delivery care services. The combination of counter

pressure massage and birth ball exercise is a holistic midwifery service that is in line with midwifery research maps. The limitations in this study are researchers have not been able to control disturbance variables and other confounding variables that can affect labor pain and increase in beta endorphin levels, researchers have not been able to monitor the progression at each subsequent contraction and researchers have not been able to conduct an assessment of Childbirth Self-efficacy in maternity mothers so they cannot know how ready a mother accepts the birth process herself.

7. Other recommendations

Subsequent research needs to develop or add other variables in the form of overall assessment not only involving one primigravida subject but others such as multigravida to control factors that interfere with the effectiveness of the treatment that has been given.

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